failure. Our purpose was to evaluate the use of postoperative Doppler ultrasound (US) flow volume measurements to determine its role in predicting failure to mature.

Methods: We conducted a single institution retrospective review of 186 patients who underwent AVF creation procedures between January 1, 2009, and December 31, 2011. Patients who never progressed to dialysis and patients who were lost to follow up were excluded (n = 177). Postoperative Doppler US flow volumes were collected. Outcomes were AVF failure to mature, and primary and secondary patency. Receiver operating characteristic (ROC) curve analysis was used to evaluate the utility of Doppler US for predicting AVF failure.

Results: The primary patency rate was 55%, and the secondary patency rate was 68%. First and second Doppler US measurements were taken on average at 3.6 weeks and 5.4 weeks postoperatively, respectively. Average time to outcome was 7.3 weeks (range, 5-9 weeks). ROC curve analysis of postoperative Doppler US flow volumes showed significant predictive capacity for fistulas that would fail to mature with ROC areas under the curve of 82.0% and 87.7% for first and second postoperative measurements, respectively. The flow volume with the greatest sensitivity and specificity for failure was 300 and 325 mL/s for the first and second measurements, respectively.

Conclusions: The use of Doppler US flow volume measurements is an excellent predictor for fistulas that will fail to mature. Our data indicate that patients are at greatest risk for failure if the US flow volumes drop <325 mL/s on repeat flow volume measurement. This finding may be clinically important and suggests that Doppler US measurements could be used to predict a need to intervene during the maturation process to improve maturation rates.

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RR17.

North American Vascular Surgery Exchange Training Program: A Collaborative Approach to Enhance the Breadth of Vascular Training

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Objectives: With rising endovascular operative volumes, there are growing concern that U.S. vascular surgery (VS) trainees do not have adequate exposure to traditional open techniques (OPEN). Canadian trainees also face contrasting concerns, given their proportionally less endovascular (ENDO) exposure. We sought to examine the operative experiences of trainees who participated in a novel Accreditation Council for Graduate Medical Education (ACGME)-approved U.S.-Canada VS exchange program.

Methods: From 2009 to 2013, 7 (three U.S., five Canadian) senior trainees participated in 3-month VS rotations in a newly approved exchange program. Trainee OPEN and ENDO procedure logs were compiled and compared to published U.S. and Canadian national graduating means.

Results: During exchange rotations, U.S. trainees performed an average of 136 procedures (53% OPEN, 47% ENDO), and Canadian trainees performed an average of 130 procedures (23% OPEN, 77% ENDO). U.S. trainees while in Canada performed an average of 29 OPEN abdominal cases, which was 52% of the overall national graduating mean, along with 57 open peripheral cases (45% of the national mean). Canadian trainees performed in 3 months an average of 108 ENDO peripheral interventions, and 16 ENDO aneurysm repairs (114% of the national mean). Qualitative surveys indicated that all U.S. trainees valued mentored open operative experience, and Canadian trainees valued endovascular experience.

Conclusions: This collaborative VS exchange program between U.S. and Canada provided significant exposure to open (for U.S. trainees) and ENDO (for Canadian trainees) during a short 3-month away rotation that potentially addresses some of the shortcomings in recent VS training trends. This program serves as a model for future development of creative and efficient VS training modalities.

Table. Operative volumes for United States (U.S.) and Canadian trainees

	U.S.	*Canada*
OPEN		
Abdominal	29	6
Peripheral	57	34
ENDO		
Diagnostic	30	49
Therapeutic	10	57
EVAR	29	16

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RR18.

The Model for Fundamentals of Endovascular Surgery (FEVS) Successfully Defines the competent endovascular surgeon

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Objectives: Fundamental skills testing is now required for certification in general surgery. No model for assessing fundamental endovascular skills exists. Our objective was to develop a model that tests the fundamental endovascular skills and differentiates competent from noncompetent performance.

Methods: The Fundamentals of Endovascular Surgery (FEVS) model was developed in both silicon and virtual-reality versions. Twenty individuals (with a range of experience) performed four tasks on each model in three separate sessions. Tasks on the silicon model were performed under fluoroscopic guidance, and electromagnetic tracking captured motion metrics for catheter tip position. Image processing captured tool tip position and motion on